

REMARKS

In the Office Action identified above, the Examiner:

- a) rejected claims 1, 4, and 6-8 under 35 U.S.C. § 103(a) as being unpatentable over Abe et al. (U.S. Patent No. 6,784,021, "Abe") in view of He (U.S. Patent No. 6,620,651, "He") and Nam et al. (U.S. Patent Application Publication No. 2002/0109217, "Nam");
- b) rejected claims 2, 3, and 12 under 35 U.S.C. § 103(a) as being unpatentable over Abe in view of He and Nam as applied to claims 1 and 6, and further in view of Sasaki et al. (U.S. Patent No. 6,294,439, "Sasaki");
- c) rejected claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Abe in view of He and Nam as applied to claim 8, and further in view of Rogowski (U.S. Patent No. 5,684,707, "Rogowski");
- d) rejected claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Abe in view of He and Nam as applied to claim 6, and further in view of either Wojewnik et al. (U.S. Patent No. 6,640,434, "Wojewnik") or Varaprasad et al. (U.S. Patent No. 5,910,854, "Varaprasad");
- e) rejected claim 11 under 35 U.S.C. 103(a) as being unpatentable over Abe in view of He and Nam, and either Wojewnik or Varaprasad as applied to claim 10, and further in view of Rogowski;

- f) rejected claim 13 under 35 U.S.C. 103(a) as being unpatentable over Abe in view of He and Nam, and Sasaki as applied to claim 12, and further in view of Rogowski;
- g) rejected claim 14 under 35 U.S.C. 103(a) as being unpatentable over Abe in view of He and Nam as applied to claim 6, and further in view of Bura et al. (U.S. Patent No. 4,489,487, "Bura");
- h) rejected claims 15-16 under 35 U.S.C. 103(a) as being unpatentable over Abe in view of He and Nam as applied to claims 1 and 6, and further in view of Cobbley et al. (U.S. Patent Application Publication No. 2004/0154956A1, "Cobbley"); and
- i) rejected claims 17-18 under 35 U.S.C. 103(a) as being unpatentable over Abe in view of He and Nam as applied to claims 1 and 6, and further in view of Oki et al. (U.S. Patent No. 5,605,844, "Oki").¹

In the present Amendment, Applicant has amended claims 1 and 6 to more appropriately define the present invention. Claims 1-4 and 6-18 are pending and under current examination.

At the outset, Applicant notes that claim 1 has been amended to recite, in part:

"placing the picked-up first and second semiconductor elements
held by the adsorption collet on the sectioned element adhesive film held
by the porous adsorption member in order of their sectioning;

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement of characterization in the Office Action.

sticking the sectioned element adhesive film held by the porous adsorption member to each of the back surfaces of the first and second semiconductor elements held by the adsorption collet by pressing the sectioned element adhesive film held by the porous adsorption member against the first and second semiconductor elements held by the adsorption collet in order of their sectioning.”

In addition, independent claim 6 has been similarly amended. Support for the amendments can be found in the specification at, for example, page 18, lines 10-17.

Applicant respectfully traverses the Examiner’s rejection of claims 1, 4, and 6-8 under 35 U.S.C. § 103(a) as being unpatentable over Abe in view of He and Nam. A *prima facie* case of obviousness has not been established.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). M.P.E.P. § 2142, 8th Ed., August 2006 Revision.

A *prima facie* case of obviousness has not been established because, among other things, Abe, He, and Nam, taken alone or in combination, fail to teach or suggest each and every element recited in independent claims 1 and 6. In particular, the applied references fail to teach or suggest, at least, the claimed method including “pressing the sectioned element adhesive film held by the porous adsorption member

against the first and second semiconductor elements held by the adsorption collet,” as recited in claim 1.

Abe teaches a method of bonding semiconductor chips 3a and 3b to die pad 12 using bonding layers 7a and 7b to produce a semiconductor device 15. However, the back surfaces of the chips 3a and 3b are *coated* with the bonding layers 7a and 7b. See Abe, col. 3, lines 57-58 and 61-62. In addition, Abe does not teach any porous adsorption member holding the bonding layers 7a and 7b. Thus, Abe fails to teach the claimed step of “pressing the sectioned element adhesive film held by the porous adsorption member against the first and second semiconductor elements held by the adsorption collet.”

He teaches, in Figs. 1 and 2, a method of laminating a die 40 onto the substrate 30 by using an adhesive 10. The adhesive 10, after being sawed into individual decals 10, is placed onto the substrate 30 and laminated to the substrate 30. Thereafter, the semiconductor die 40 is then placed onto the adhesive 10 and laminated. See He, col. 3, lines 33-38. He, however, does not teach any porous adsorption member holding the adhesive 10. Rather, the adhesive 10 is stuck on substrate 30 at the time that the semiconductor die 40 is laminated. He thus fails to teach the claimed step of “pressing the sectioned element adhesive film held by the porous adsorption member against the first and second semiconductor elements held by the adsorption collet.”

Nam teaches a die bonding apparatus wherein an adhesive tape 68 is bonded to a die pad 66 of a lead frame 60 using a tape pick-up tool 52, and a second chip 72 is bonded to the die pad 66 through the adhesive tape 68. See Nam, paragraph [0029].

Since the adhesive tape 68 is bonded to the die pad 66 at the time that the second chip 72 is bonded to the adhesive tape 68, Nam also fails to teach the claimed “pressing the sectioned element adhesive film held by the porous adsorption member against the first and second semiconductor elements held by the adsorption collet.”

Therefore, Abe, He, and Nam, each taken alone or in combination, fail to teach or suggest the claimed “pressing the sectioned element adhesive film held by the porous adsorption member against the first and second semiconductor elements held by the adsorption collet,” as recited in claim 1.

Additionally, the cited references also fail to teach “cutting an element adhesive film held by a porous adsorption member according to the shape of one of the semiconductor elements to form a sectioned element adhesive film.” The Examiner contends that although Abe and He fail to show each and every limitation recited in claim 1, “Nam teaches...an adsorption member, 52, for holding the adhesive film and a cutting mechanism, 48, for cutting the element adhesive film held by the adsorption member (paragraph 0028).” Office Action at page 3. Applicants respectfully disagree.

Nam’s pick-up tool 52 does not hold the adhesive film being cut by the tape cutter 48. Instead, the adhesive tape 68 is cut using the tape cutter 48 while held by tape holder 50 and pressed by tape presser 49. The tape holder 50 and the tape presser 49 fix the adhesive tape 68 in place. See Nam, paragraph [0028]. After such cutting, the tape pick-up tool 52 picks up the adhesive tape 68. See Nam, paragraph [0029]. Therefore, Nam does not teach or suggest the claimed “cutting an element adhesive film held by a porous adsorption member,” at least for this reason.

Furthermore, the tape pick-up tool 52 of Nam is apparently non-porous. The tape pick-up tool 52 applies a suction force through a single vacuum suction hole 53 to pick up the adhesive tape 68. Even the Examiner, in the rejection of claim 1, merely alleges element 52 of Nam as “an adsorption member.” Office Action at page 3. Accordingly, Nam cannot teach or suggest the claimed “cutting an element adhesive film held by a porous adsorption member,” as recited in claim 1, for this additional reason.

Therefore, Abe, He, and Nam, either taken alone or in combination, fail to teach each and every element of claim 1, and accordingly no *prima facie* case of obviousness of claim 1 has been established. In addition, claim 6, although of different scope, recites features similar to those recited in claim 1. Claims 1 and 6 are thus allowable over the Examiner’s proposed combination of Abe, He, and Nam, and claims 4 and 7-8 are also allowable at least due to their dependence from claims 1 and 6, respectively.

Applicant also respectfully traverses the 35 U.S.C. § 103(a) rejection of claims 2, 3, and 12, 2, 3, and 12 as being unpatentable over Abe in view of He and Nam, and Sasaki; the rejection of claim 9 as being unpatentable over Abe in view of He and Nam, and Rogowski; the rejection of claim 10 as being unpatentable over Abe in view of He and Nam, and “Wojewnik or Varaprasad”; the rejection of claim 11 as being unpatentable over Abe in view of He and Nam, and either Wojewnik or Varaprasad, and Rogowski; the rejection of claim 13 as being unpatentable over Abe in view of He and Nam, and Sasaki, and Rogowski; the rejection of claim 14 as being unpatentable over

Abe in view of He and Nam, and Bura; the rejection of claims 15-16 as being unpatentable over Abe in view of He and Nam, and Cobbley; and the rejection of claims 17-18 as being unpatentable over Abe in view of He and Nam, and Oki.

A *prima facie* case of obviousness has not been established. Claims 2, 3, and 9-18 depend from claims 1 and 6, and thus require each and every element recited in claims 1 and 6. A *prima facie* case of obviousness has not been established because, among other things, the cited references, taken alone or in combination, fail to teach or suggest each and every element recited in claims 1 and 6, and required by claims 2, 3, and 9-18.

Applicant has already established above in regard to the rejection of claim 1 that the Examiner's proposed combination of Abe, He, and Nam fails to teach at least the claimed "pressing the sectioned element adhesive film held by the porous adsorption member against the first and second semiconductor elements held by the adsorption collet," and "cutting an element adhesive film held by a porous adsorption member," as recited in claim 1. The Examiner relies on each of the additional references for teachings recited in dependent claims 2, 3, and 9-18. However, Applicant notes that none of the additional references cited by the Examiner overcomes the shortcomings of Abe, He, and Nam. Specifically, at least "pressing the sectioned element adhesive film held by the porous adsorption member against the first and second semiconductor elements held by the adsorption collet," and "cutting an element adhesive film held by a porous adsorption member," as recited in claims 1 and 6, are missing from each of the additional references. Accordingly, no *prima facie* case of obviousness has been

established, and the 103(a) rejections of dependent claims 2, 3, and 9-18 should therefore be withdrawn.


In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

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By: 
Selah C. Park
Reg. No. 57,127